



Western Fisheries Research Center (WFRC)

## Western Fisheries Science News



USGS

*Healthy young sturgeon like these are rare despite adults spawning regularly.*

### WFRC Provides Science to Recover Sturgeon

Last month fisheries managers from Oregon and Washington met again in the latest round of debates over fishing restrictions designed to increase populations of white sturgeon in the lower Columbia River. Sturgeon populations in this area rebounded in response to fishing limits in the past, but restrictions in other areas of the Columbia and Snake rivers did not have similar success, suggesting that the factors limiting population growth in some places may be unrelated to harvest. While sturgeon spawn downstream from every dam on the Columbia River, young fish are rarely found in most areas, likely because most eggs and hatchlings don't survive their first year. Why so many sturgeon die young is largely unknown. Some river reaches support consistently good spawning success while others support little to none. Identifying the factors that limit sturgeon recruitment (young reaching maturity) is an important focus of research for WFRC biologists at the Columbia River Research Lab (CRRL) in Cook, WA. Identifying the cause of this population bottleneck will meet a crucial management need.

Since the mid 1980s WFRC scientists at the CRRL have been conducting field and laboratory studies to gain information needed by resource managers to restore or protect sturgeon populations. The group has consistently (continued on page 2)

### In the News

**Exhibit on Restoration of the Elwha at the Burke Museum:** The Burke Museum of Natural History in Seattle recently unveiled an exhibit featuring WFRC science to support restoration of the Elwha River after the largest dam removal in history. The exhibit, titled "Elwha: A River Reborn" runs November 23, 2013– March 9, 2014. For more information visit <http://goo.gl/gH6lQK> or contact Jeff Duda at [jduda@usgs.gov](mailto:jduda@usgs.gov) or 206-526-6282 x233.

### Interview with Salmon Steelhead Journal:

On November 7, WFRC Biologist Brady Allen was interviewed by Terry Otto, outdoor writer for *Salmon Steelhead Journal*, about WFRC science that is guiding fisheries management and restoration efforts on the White Salmon River. For more information, contact Brady Allen at [ballen@usgs.gov](mailto:ballen@usgs.gov) or 509-538-2299, x 356.

### Events

**WFRC Presents at Upper Columbia Science Conference:** WFRC scientists Ryan Bellmore and Patrick Connolly presented at the 2013 Upper Columbia Science Conference, Nov. 13, in Wenatchee, WA. Connolly presented a talk titled "Fish response to restoration efforts in the Methow watershed" and Bellmore presented a talk titled "The trophic productivity model: Incorporating food webs into salmon recovery science". The conference was themed "Salmon Recovery Science in Practice". For more information, visit [www.ucscience.org](http://www.ucscience.org) or contact Pat Connolly at [pconnolly@usgs.gov](mailto:pconnolly@usgs.gov) or 509-538-2299 ext. 269.

(from pg. 1) pioneered new approaches by combining traditional and cutting edge field sampling and remote sensing techniques, laboratory studies, and advanced data analysis and modeling to study sturgeon from headwaters to the Pacific Ocean. Research Biologist Mike Parsley has led sturgeon research at the CRRL since the mid 1990s, gaining recognition as an international authority on sturgeon. Parsley's group approaches the question of spawning and rearing success from a range of different angles, at times indirectly, while addressing the research needs of their partners. Some key findings include the extreme reductions in growth that sturgeon fry experience when they have to grow in cooler water temperatures after the summertime release of deep water from dams. Also, eggs and young hatchlings are more readily eaten by predators in the clear waters of the Columbia River that result from trapping sediments in upper-basin reservoir. Parsley's team also developed an index that is now used to measure sturgeon spawn success in many areas.

Along with investigating what makes some sturgeon populations successful and others not, Parsley's team has answered many of their partners' specific questions. They showed that sturgeon in Lake Roosevelt commonly eat smelter slag, a waste product of ore refinement that was routinely dumped into the Columbia River upstream from Lake Roosevelt until the mid 1990s. They also showed that, despite common belief, sturgeon can and do use fish ladders regularly, as long as they are sized appropriately. Parsley and his colleagues have used their remote sensing approach and data analysis techniques to evaluate how sturgeon respond to dredging and provided a model that can be used to predict how dredging may change river habitat for these fish. They showed how monitoring movements of spawning sturgeon can be used to measure benefits from restored or enhanced habitat for spawning, helping target future conservation.

Parsley's team has taken approaches as varied and diverse as the many partners with whom they have worked. These include the Bonneville Power Administration, the U.S. Army Corp of Engineers, U.S. Fish and Wildlife Service, the U.S. Bureau of Reclamation, the U.S. Department of Interior, multiple tribes and BC Hydro (Canada). It is in part for this reason that Parsley's team has remained so flexible in their approach and so adaptable to evolving technologies. For more information [contact Steve Waste at swaste@usgs.gov](mailto:swaste@usgs.gov) or 509-538-2299 x 236.

## Events

**WFRC Presents at Coastal & Estuarine Research Federation Conference:** WFRC Fisheries Biologist Lisa Wetzel participated in the 22nd Biennial Conference of the Coastal & Estuarine Research Federation, Nov. 3-7, in San Diego, CA. Wetzel presenting research on mountain whitefish migration and habitat connectivity in the Columbia River basin. For more information, [Contact Lisa Wetzel at lwetzel@usgs.gov](mailto:lwetzel@usgs.gov) or 206-526-2538.

**WFRC Presents at Watershed and Fisheries Program Managers Meeting:** On Nov. 21, WFRC scientist Ryan Bellmore presented at the Forest Service's Watershed and Fisheries Program Managers meeting in Corvallis, OR. Bellmore presented work, conducted with USGS scientist Patrick Connolly, from the Methow River which addresses responses of salmonids to habitat restoration efforts and food webs. The study is a cooperative effort with the U.S. Forest Service and the Bureau of Reclamation. For more information, [contact Ryan Bellmore at jbellmore@usgs.gov](mailto:jbellmore@usgs.gov) or 541-750-0252.

## Publications

**Forecasting Aquatic Invasions:** In a recent issue of Biological Invasions, WFRC researcher Deborah Reusser and co-authors published an article titled "Geographic range and structure of cryptic genetic diversity among Pacific North American populations of the non-native amphipod *Grandidierella japonica*" which describes the invasion history and spread of the Japanese amphipod. For more information, visit <http://goo.gl/uVwXRM> or [contact Deborah Reusser at dreusser@usgs.gov](mailto:dreusser@usgs.gov) or 541-867-4045.

**New Diagnostic Tool for Globally Important Fish Virus:** A paper co-authored by WFRC scientists in collaboration with the US Fish and Wildlife Service and Fisheries and Ocean Canada, was recently published in the journal Diseases of Aquatic Organisms. The study reports the development and validation of a new diagnostic assay for the salmonid fish pathogen, infectious hematopoietic necrosis virus (IHNV). For more information visit <http://goo.gl/GFyGwj> or [contact Maureen Purcell at mpurcell@usgs.gov](mailto:mpurcell@usgs.gov) or 206-526-6282 x 252.

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